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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,793	10/20/2005	Kenneth M. Evans	XY-Hypodermic-USNP	8305
28424 7590 12/14/2009 SANTANGELO LAW OFFICES, P. C. 125 SOUTH HOWES STREET THIRD FLOOR FORT COLLINS, CO 80521				
EXAMINER				
FRITCHMAN, REBECCA M				
ART UNIT		PAPER NUMBER		
1797				
NOTIFICATION DATE		DELIVERY MODE		
12/14/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/524,793

**Applicant(s)**

EVANS, KENNETH M.

**Examiner**

REBECCA FRITCHMAN

**Art Unit**

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 and 27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/GS/US)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Detailed Action  
Summary***

This is the Non-Final Office action based on the 10/524793 application RCE filed on 11/24/2009.

Claims 1-14, & 27 are pending and have been fully considered.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**1. Claims 1-14, & 27 are rejected under 35 U.S.C. 103(a) as being obvious over BUCHANAN in US 6604435 and in further view of NEWTON in US 6230982.**

With respect to Claim 1, BUCHANAN et al. teaches of a method of flow cytometry which focuses on sorting delicate cells, especially living sperm cells(which are obviously from male species of mammals)(column 1, lines 11-18). BUCHANAN et al. also teach injecting fluid into a ribbon flow (which has a central longitudinal axis) through an injection point (column 8, line 62-67 & column 9, lines 1-9). In addition to that, BUCHANAN et al also teaches of a liquid flow cytometer system where a sample is processed into individual droplets prior to being analyzed and sorted (column 5, lines 26-31). Also, BUCHANAN et al. teach of sorting sperm containing drops by the sorting

device(Obviously two or more groups)(column 10, lines 33-37). BUCHANAN et al. do not specifically teach of the adjustable injection point. NEWTON teaches of an adjustable valve for varying the position of injection into a flowing liquid stream, slidably adjusting the position of the valve with respect to the center of the stream (Claim 29). It would have been obvious to modify the method of flow cytometry of BUCHANAN by using the adjustable, slidable fluid dispensing valve of NEWTON in order to adjust the inlet of the cells within the carrier fluid to minimize backflow which results in unwanted contamination of dispersing fluids (NEWTON, column 1, lines 19-23). It would be obvious to one of ordinary skill to provide a built in selection mechanism as this would be automation of a manual method. In re Venner, 120 USPQ 192.

With respect to Claim 2, BUCHANAN et al. teaches of the use of bovine and equine sperm cells which have been stained and sorted by their DNA content (column 15, lines 5-10).

With respect to Claim 3, BUCHANAN et al. teaches of the sample stream being drawn into a thin ribbon by the sheath fluid (column 6, lines 36-37).

With respect to Claim 4, BUCHANAN et al. teaches of sperm cells being buffered in specifically prepared sperm compatible buffer (column 10, lines 41-44). Citrate, phosphate, and HEPES buffer are all well known in the art and would have been obvious to use.

With respect to Claim 5, BUCHANAN et al. teaches of obtaining sperm cells of the male and female bovine and equine species wherein the step of injecting sperm cells into the sheath fluid comprises injecting sperm cells from the selected groups into

the sheath fluid at an injection point (Claim 10 & 17). It is inherent to inject the sperm cells of the first and second species at different injection points.

With respect to Claim 6, BUCHANAN et al. teach of adjusting the injection point by use of a beveled tip where by the preferred amount of beveling is 4 degrees(column 6, lines 40-67, column 7, lines 1-27).

With respect to Claim 7, NEWTON teaches of an adjustable valve for varying the position of injection into a flowing liquid stream, slidably adjusting the position of the valve with respect to the center of the stream (Claim 29). It would have been obvious to modify the method of flow cytometry of BUCHANAN by using the adjustable, slidable fluid dispensing vale of NEWTON in order to adjust the inlet of the cells within the carrier fluid to minimize backflow which results in unwanted contamination of dispersing fluids (NEWTON, column 1, lines 19-23).

With respect to Claim 8, NEWTON teaches of slidably adjusting the position of the valve with respect to the center of the stream (Claim 29). This is equivalent method to the slidable valve and therefore would be considered obvious to one of ordinary skill in the art.

With respect to Claim 9, BUCHANAN et al. teaches of adjusting the injection point by use of a beveled tip where by the preferred amount of beveling is 4 degrees(column 6, lines 40-67, column 7, lines 1-27). BUCHANAN et al. also teaches of varying the size of the nozzle, height and the diameter(column 7, lines 9-15) through which the distance between injection points of the sperm cells into the fluid stream would be altered.

With respect to Claim 10, BUCHANAN et al. teaches of adjusting the injection point by use of a beveled tip where by the preferred amount of beveling is 4 degrees( 4 degrees is the optimum for preferred stream resolution)(column 6, lines 40-67, column 7, lines 1-27). BUCHANAN et al. also teaches of varying the size of the nozzle, height and the diameter (column 7, lines 9-15) through which the distance between injection point of the sperm cells into the fluid stream would be altered.

With respect to Claim 11, BUCHANAN et al. teach of adjusting the injection point by use of a beveled tip where by the preferred amount of beveling is 4 degrees( 4 degrees is the optimum for preferred stream resolution)(column 6, lines 40-67, column 7, lines 1-27). BUCHANAN et al. also teach of the sample stream being drawn into a thin ribbon(due to the beveling) by the sheath fluid, the resulting change in flow condition causing a corresponding orientation of the sample material (column 6, lines 35-39).

With respect to Claim 12, BUCHANAN et al. teach of et al. teach of adjusting the injection point by use of a beveled tip where by the preferred amount of beveling is 4 degrees( 4 degrees is the optimum for preferred stream resolution)(column 6, lines 40-67, column 7, lines 1-27). BUCHANAN et al. also teach of the sample stream being drawn into a thin ribbon(due to the beveling) by the sheath fluid, the resulting change in flow condition causing a corresponding orientation of the sample material (column 6, lines 35-39).

With respect to Claim 13, BUCHANAN et al. teaches of sorting delicate cells, especially sperm cells (column 1, lines 16-17).

With respect to Claim 14, BUCHANAN et al. teaches of sorting delicate cells, especially sperm cells (column 1, lines 16-17). BUCHANAN et al. also teaches of the sperm containing drops being sorted by the sorting device and collected by the sperm-compatible collecting system wherein the X or Y chromosome bearing sperm may be used for insemination (column 10, lines 50-57).

With respect to Claim 27, Examiner takes notice of the equivalence of a slidably adjustable valve (slidable engagement between particle injector and nozzle body) to a key stop mated with a nozzle body in adjusting, selectively and variably the injection point. This is also evidenced in applicants arguments dated 04/29/2009, (page 1, paragraph 2).

### ***Response to Arguments***

Applicant's arguments filed 11/24/2009 have been fully considered but they are not persuasive.

BUCHANAN et al. teaches of a method of flow cytometry which focuses on sorting delicate cells, especially living sperm cells(which are obviously from male species of mammals)(column 1, lines 11-18). BUCHANAN et al. also teach injecting fluid into a ribbon flow (which has a central longitudinal axis) through an injection point (column 8, line 62-67 & column 9, lines 1-9). In addition to that, BUCHANAN et al also teaches of a liquid flow cytometer system where a sample is processed into individual droplets prior to being analyzed and sorted (column 5, lines 26-31). Also, BUCHANAN et al. teach of sorting sperm containing drops by the sorting device (obviously two or

more groups)(column 10, lines 33-37). BUCHANAN et al. do not specifically teach of the adjustable injection point. NEWTON teaches of an adjustable valve for varying the position of injection into a flowing liquid stream, slidably adjusting the position of the valve with respect to the center of the stream (Claim 29). It would have been obvious to modify the method of flow cytometry of BUCHANAN by using the adjustable, slidable fluid dispensing vale of NEWTON in order to adjust the inlet of the cells within the carrier fluid to minimize backflow which results in unwanted contamination of dispersing fluids (NEWTON, column 1, lines 19-23). It would be obvious to one of ordinary skill to provide a built in selection mechanism as this would be automation of a manual method. In re Venner, 120 USPQ 192.

The examiner's understanding is that a valve which is laterally adjustable is adjustable "with respect to the central longitudinal axis". If this is different, applicant must further clarify.

Both BUCHANAN and NEWTON are related to fluid stream systems, therefore there would be reasonable expectation of success in using a valve similar to NEWTON in the BUCHANAN flow cytometer.

With respect to Claim 8, NEWTON teaches of slidably adjusting the position of the valve with respect to the center of the stream (Claim 29). This is equivalent method to the slidable valve and therefore would be considered obvious to one of ordinary skill in the art.

Examiner would like to confirm that in the prior rejection, she in fact meant Claim 27, when addressing Claim 37. This was a typographical error.



***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to REBECCA FRITCHMAN whose telephone number is (571)270-5542. The examiner can normally be reached on Monday- Friday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim, Vickie can be reached on 571-272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Krishnan S Menon/

Primary Examiner, Art Unit 1797

R.F.